

REMARKS

The foregoing amendments and the following remarks are responsive to the Office Action mailed March 30, 2006. Applicants respectfully request reconsideration of the present application. Claims 1-59 were examined. No claims have been amended, cancelled or added. Claims 1-59 are presented for examination.

Claim Rejections under 35 U.S.C. §103(a)

Claims 1-13, 17-22, 28-35 and 57-59

The Examiner rejected claims 1-13, 17-22, 28-35 and 57-59 as being unpatentable over U.S. Patent No. 6,067,383 issued to Taniguchi, et al. ("Taniguchi") in view of U.S. Patent No. 6,157, 746 to Sodagar, et al. ("Sodagar").

In claim 1, Applicants claim "organizing the bands into a plurality of layers suitable for progressive transmission to a target device, wherein a layer from the plurality of layers includes a subset of bitplanes from a first band from the separate bands and a subset of bitplanes from a second band from the separate bands."

As acknowledged by the Examiner, Taniguchi fails to teach or suggest this limitation. (Office Action dated 03/30/06, p. 3). The Examiner relies on Sodagar to supply this limitation:

Sodagar et al. teaches separate bands (figure 17 and 21 shows different bands as HH1, HL1, etc.) include a first band (e.g. band 10 in figure 21) with a first number of bit-planes (figure 23 shows bit-planes 1-10 corresponding to bands) and based on quality and resolution provided by each band at a certain bit depth, organizing the bands into a plurality of layers (figures 17 shows three levels or layers of bands) suitable for progressive transmission to a target device, wherein a layer from the plurality of layers includes a subset of bit-planes (e.g. bitstream 1 corresponding to band 1) from a first band from the separate bands and a subset of bit-planes from a second band from the separate bands (e.g.. bitstream 2 corresponding to band 2).

(Office Action dated 03/30/06, p. 3).

Sodagar discloses encoding wavelet trees in a wavelet-based coding technique. (Sodagar, Abstract; col. 3, lines 17-19). In pertinent parts of the portions cited by the Examiner and elsewhere, Sodagar discloses:

The wavelet tree generator 104 performs (at step 204) a wavelet hierarchical subband decomposition to produce a conventional wavelet tree representation of the input image. To accomplish such image decomposition, the image is decomposed using times two subsampling in each of two-dimensions into high horizontal-high vertical (HH), high horizontal-low vertical (HL), low horizontal-high vertical (LH), and low horizontal-low vertical (LL), frequency subbands. The LL subband is then further subsampled times two in each of two dimensions to produce a set of HH, HL, LH and LL subbands. This subsampling is accomplished recursively to produce an array of subbands such as that illustrated in FIG. 3 where three subsamplings have been used.

(Sodagar, col. 4, line 62 to col. 5, line 7).

Sodagar clarifies how the bitstream is constructed by stating:

The present invention further includes a method for providing a spatial scaleable zerotree coding. The method employs a breath first or band first scanning order. Namely, the wavelet coefficients of the low-low bands are coded first, then the coefficients of the other low resolution bands are coded. Next, the coefficients of the next higher resolution are coded and put into a bitstream as illustrated in FIG. 23. The portions of (numbered from 1-10) the bitstream correlate to the bands as illustrated in FIG. 21. This method continues until the coefficients of the last high-high band are coded and placed into the bitstream.

(Sodagar, col. 18, lines 25-35).

Thus, Sodagar discloses decomposing an input image to many levels of wavelet decompositions to provide subbands. The decomposition involves recursively subsampling an image to produce an array of subbands. Sodagar further discloses coding wavelet coefficients of the bands and putting the coded coefficients into a bitstream. The bitstream correlates to the bands, thus the bands are coded into the bitstream from low-low band first, then the other low resolution bands, then the next higher resolution band, and so on.

Thus, Sodagar teaches away from constructing a layer which includes a subset of bitplanes from a first band and a subset of bitplanes from a second band. Therefore, Sodagar does not teach or suggest that a layer includes **“a subset of bitplanes from a**

first band from the separate bands and **a subset of bitplanes from a second band** from the separate bands,” as recited in claim 1.

As neither Taniguchi nor Sodagar teaches each and every limitation of claim 1, the combination cannot be interpreted to render obvious claim 1 and associated dependent claims 2-13, 17-22, 28-35, and 57-59.

Claims 14-16

The Examiner rejected claims 14-16 as being unpatentable over Taniguchi in view of Sodagar in further view of U.S. Patent No. 5,761,655 to Hoffman.

Hoffman discloses a system that creates, stores, retrieves and displays thumbnail images. (Hoffman, Abstract.) Hoffman does not teach or suggest transforming each of the planes into separate bands at all. Therefore, whether considered separately or in combination with Taniguchi and Sodagar, Hoffman fails to teach or suggest a method including organizing bands into a plurality of layers, wherein a layer includes “**a subset of bitplanes from a first band** from the separate bands and **a subset of bitplanes from a second band** from the separate bands as recited in claim 1. Claims 14-16 include these limitations by virtue of being dependent on claim 1. Therefore, claims 14-16 are patentable over the combination of Hoffman, Taniguchi, and Sodagar.

Claims 23 and 24

Examiner rejected claims 23 and 24 as being unpatentable over Taniguchi in view of Sodagar and in further view of U.S. Patent No. 5,880,856 to Ferriere.

Ferriere discloses a method of storing and of progressively transferring a still image so that it can be conveniently previewed during the transfer and so that a user can terminate the transfer at an early stage if the image turns out to be undesirable. (Ferriere, Abstract.) Ferriere does not teach or suggest organizing bands into a plurality

of layers. Therefore, Ferriere, whether considered separately or in combination with Taniguchi and Sodagar, fails to disclose or suggest a method including organizing bands into a plurality of layers, wherein a layer includes **“a subset of bitplanes from a first band from the separate bands and a subset of bitplanes from a second band from the separate bands, as recited in claim 1. Claims 23 and 24 include these limitations by virtue of being dependent on claim 1. Therefore, claims 23 and 24 are patentable over the combination of Ferriere, Taniguchi, and Sodagar.**

Claims 25-27

Examiner rejected claims 25-27 as being unpatentable over Taniguchi, Sodagar, Ferriere and in further view of U.S. Patent No. 6,615,224 to Davis.

Davis discloses a method for deleting files on a UNIX file system, so that they may subsequently be undeleted, without any possibility of loss or damage. (Davis, Abstract.) Davis does not teach or suggest the use of bitplanes or organizing bands into layers. Therefore, Davis, whether considered separately or in combination with Taniguchi, Sodagar, and Ferriere, fail to disclose or suggest a method including “transforming each of the planes into separate bands, based on frequency information present in each plane, wherein the separate bands include a first band with a first number of bitplanes” and “organizing the bands into a plurality of layers suitable for progressive transmission to a target device, wherein a layer includes a subset of the bitplanes of the first band,” as recited in claim 1. Claims 25-27 include these limitations by virtue of being dependent on claim 1. Therefore, claims 25-27 are patentable over the combination of Davis, Taniguchi, Sodagar, and Ferriere.

Claims 36-46

Examiner rejected claims 36-46 as being unpatentable over Taniguchi, Sodagar and in further view of Davis.

Claim 36 recites "partitioning said image information at the source device into a plurality of layers, based on resolution and quality criteria, **wherein a layer from the plurality of layers includes a subset of bitplanes from a first band** from the plurality of bands **and a subset of bitplanes from a second band** from the plurality of bands."

As discussed with respect to claim 1, the combination of Sodagar and Taniguchi fails to teach or suggest these features. Davis is not concerned with transforming or partitioning image information. Thus, the combination of Taniguchi, Sodagar, and Davis fails to disclose or suggest the features of claim 36. Claims 37-46 include these limitations by virtue of being dependent on claim 36. Therefore, claim 36 and its dependent claims 37-46 are patentable over the combination of Taniguchi, Sodagar, and Davis.

Claims 47, 49, 51, 52

Examiner rejected claims 47, 49, 51 and 52 as being unpatentable over Taniguchi, Ferriere in view of Sodagar and in further view of Davis.

Claim 47 recites "wherein **a layer from the successive layers includes a subset of the bitplanes from a first band** from the frequency bands and **a subset of bitplanes from a second band** from the frequency bands." As discussed above, Taniguchi, Sodagar, Ferriere, and Davis fail to disclose or suggest this feature, whether considered separately or in the combination. Therefore, claim 47 and its dependent claims 49, 51, and 52 are patentable over the combination of Taniguchi, Sodagar, Ferriere, and Davis.

Claim 48

Examiner rejected claim 48 as being unpatentable over Taniguchi, Ferriere and Davis in view of Hoffman.

Claim 48 includes the feature of “wherein a layer from the successive layers includes a subset of the bitplanes from a first band from the frequency bands and a subset of bitplanes from the second band from the frequency bands” by virtue of being dependent on claim 47. As discussed above in reference to claims 14-16 and 23-24, Taniguchi, Ferriere, Davis, and Hoffman fail to disclose or suggest this feature, whether considered separately or in the combination. Therefore, claim 48 is patentable over the combination of Taniguchi, Ferriere, Davis, and Hoffman.

Claim 50

Examiner rejected claim 50 as being unpatentable over Taniguchi, Ferriere and Davis in view of U.S. Publication No. 2001/0049693 to Pratt.

Claim 50 includes the feature of “wherein **a layer from the successive layers includes a subset of the bitplanes from a first band** from the frequency bands and **a subset of bitplanes from a second band** from the frequency bands” by virtue of being dependent on claim 47. As discussed above in reference to claim 50, Taniguchi, Ferriere, and Davis fail to disclose or suggest this feature, whether considered separately or in the combination. Pratt is directed at an automated data processing system (Pratt, Abstract) and is not concerned with bands or layers representing image data. Thus, claim 50 is patentable over the combination of Taniguchi, Ferriere, Davis, and Pratt.

Claims 53-55

Examiner rejected claims 53-55 as being unpatentable over Taniguchi in view of Sodagar.

Claim 53 recites “a logic to partition the image data into a plurality of layers, wherein each of the plurality layers includes information that permits rendering of the entire image, the plurality of layers being additive to render the image at increasingly better qualities and wherein **a layer from the plurality of layers includes a subset of bitplanes from a first band and a subset of bitplanes from a second band.**” Thus, claim 53 and its dependent claims 54-55 are patentable over the combination of Taniguchi and Sodagar for at least the reasons articulated with respect to claim 1.

Claim 56

Examiner rejected claim 56 as being unpatentable over Taniguchi, Sodagar and Ferriere in view of Davis.

Claim 56 recites “wherein a layer from the plurality of layers includes a subset of bitplanes from a first band and a subset of bitplanes from a second band” by virtue of being dependent on claim 53. As discussed above in reference to claim 47, Taniguchi, Sodagar, Ferriere, and Davis fail to disclose or suggest this feature, whether considered separately or in the combination. Therefore, claim 56 is patentable over the combination of Taniguchi, Sodagar, Ferriere, and Davis.

Conclusion

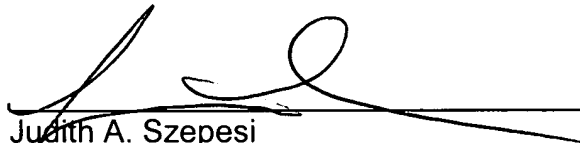
In view of the foregoing remarks, Applicants respectfully submit that all pending claims are in condition for allowance. Such allowance is respectfully requested.

If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to contact Judith A. Szepesi at (408) 720-8300.

If there are any additional charges, please charge Deposit Account No. 02-2666.

Respectfully submitted,

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